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ABSTRACT

A review of literature indicates that schools with effective reading programs tend to have common characteristics, such as a strong commitment to improved reading; a competent teaching and administrative staff; clearly defined objectives; a structured, intensified program; adequate assessment techniques; a variety of materials; and parental support and involvement. Many of the problems concerning the teaching and learning of comprehension result from a lack of basic knowledge of comprehension processes; and although research is currently studying the comprehension process, a gap still exists between what is known and what is practiced. Research to translate existing findings into instructional strategies is sorely needed, and transmitting such information to teachers also presents a problem. Continuing teacher education seems to offer both the greatest promise for improving reading and yet, in terms of time and resources, the greatest problem. (Author/RL)

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Factors Affecting Reading Achievement

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Abstract

FACTORS AFFECTING READING ACHIEVEMENT

This paper attempted to answer the questions "What do we know about what works in the teaching of reading?," "Why isn't our ability to teach reading reflected in improved test scores?," and "What can we do to improve reading comprehension?" A review of literature indicated that schools with effective reading programs tend to have common characteristics such as a strong commitment to improved reading, a competent teaching and administrative staff, clearly defined objectives, a structured, intensified program, adequate assessment techniques, availability of a variety of materials, and parental support and involvement.

Many of the problems concerning the teaching and learning of comprehension result from a lack of basic knowledge of comprehension processes. Much research is currently underway to study these processes. However, there is still a gap between what is known and what is practiced. Research to translate existing findings to instructional strategies is sorely needed. Transmitting this information to practioners also presents a problem. Continuing teacher education seems to offer the greatest promise for improving reading yet also poses the greatest problem for educators in terms of available time and resources.

INTRODUCTION

The most recent nationwide reading survey conducted by the National Assessment of Educational Progress (NAEP) indicated that the reading skills of young readers have improved. Specifically, the 1975 nine year olds scored higher than the nine year olds of 1971. Blacks in the nine year old level showed a large improvement in all skills. However, no age-level group (nine, thirteen, or seventeen year olds) improved significantly in any comprehension skill (Venezky, 1977).

The lack of significant improvement in comprehension skills leads to speculation about the need for more emphasis on improving the instruction and assessment of reading comprehension at all educational levels.

The purpose of this brief paper is to address three reading-related questions, offer possible answers which are supported by research findings, and to suggest possible ways to improve the teaching and learning of reading comprehension.

The three questions are:

1. What do we know about what works in the teaching of reading? (a) K-3, (b) 4-6.
2. Why isn't our ability to teach reading reflected in improved test scores?
3. Assuming possible answers to #1, what can we do to improve reading comprehension?

Information centered around the questions is presented in two tables.

Table 1 addresses the question of what is known about what works in the teaching of reading, refers to supporting research, and offers suggestions for further improvement. Table 2 suggests possible reasons why test scores are not improving, refers to supporting research evidence, and offers suggestions which might lead to reading improvement. The remainder of the paper briefly elaborates on the references cited in the tables and suggests problem-oriented questions related to the factors which appear to contribute to reading improvement.

WHAT WORKS IN THE TEACHING OF READING?

It is human to seek simplistic answers to complex problems, but rarely are such answers found. This is the case when we attempt to study effective teaching of reading. Research has shown that we can not rely on any single variable to account for more than a relatively small portion of the variance in student achievement (Centre and Potter, 1977), but rather that a pattern of teaching performances is more likely to be related to learning than any single performance (McDonald, 1976). Evertson and Brophy (1973) refer to this phenomenon as the "orchestration" of teaching. Nevertheless, factors affecting student learning have been identified and the most promising approach to school improvement appears to be the identification and implementation of patterns of instruction which cross a number of aspects of the school program (Connolly, 1977).

Table 1

What Works in the Teaching of Reading

Possible Factors	Supporting Research	Suggestions
Reading in General		
1. A strong commitment by schools (especially administrators) to place improved reading as a high priority	Samuels (in press) Carroll & Chall (1975) Bond & Dykstra (1967) Wilder (1977)	• Increase administrators' awareness of importance of support through training programs
2. High expectations by teachers and administrators	Rosenthal and Jacobsen (1968) Brophy and Good (1972) Pigeon (1970) Gordon (in press)	• Study ways to improve teacher/administrator expectations
3. Policy and support for reading improvement from all levels of the system	Carroll & Chall (1975) Holzman & Boes (1973) Klitgaard & Hall (1973) Wilder (1977)	• Develop plan and procedures to implement improvement plan throughout all levels of educational system
4. A well-trained and highly motivated staff	Bond & Dykstra (1967) Sweeney and Blaschke (1975) Wargo et al (1972) Wilder (1977) Holzman & Boes (1973)	• Identify teacher/administrator characteristics which contribute to teaching effectiveness
5. The identification of reading objectives which are clearly written and understood by all staff	Holzman & Boes (1973) Rosenshine (1976)	• Develop plan and procedures for schools to identify and state objectives

Table 1 (cont.)

What Works in the Teaching of Reading

Possible Factors	Supporting Research	Suggestions
Reading in General		
6. The use of adequate assessment measures and techniques	Cooley & Leinhardt (1976) Criscuolo (1977) Tyler & Wolf (1974)	• Develop teacher diagnostic/prescriptive skills through teacher in-service
7. A structured, well-organized instructional program which relates to the specified objectives	Cooley & Leinhardt (1975) Rosenshine (1976) Evertson & Brophy (1973) Bond & Dykstra (1967) Soar (1973) McDonald (1976)	• Improve teacher classroom organizational and instructional skills through in-service
8. Intensified treatment with emphasis on reading-related activities	Stallings & Kaskowitz (1974) Wiley & Harnischfeger (1974) McDonald (1976)	• Develop procedures for teachers to identify and implement student and teacher on-task behaviors
9. Availability of a variety of materials and instructional strategies	Cooley & Leinhardt (1976) Snow (1977) Bond & Dykstra (1967) Wilder (1977)	• Provide information on availability of effective materials (e.g. Resource Handbook)
10. Support and involvement by parents	Criscuolo (1977) Holzman & Boes (1973) Klitgaard & Hall (1973)	• Develop procedures for schools to encourage parent involvement

Table 1 (cont.)

What Works in the Teaching of Reading

Possible Factors	Supporting Research	Suggestions
Decoding		
11. Early reading skills are best acquired through methods that emphasize instruction in phonics	Diederick (1973) Chall (1967)	• Describe reading programs which offer a structured, sequenced phonetic approach. Make information available to teachers (e.g. Resource Handbook)
Comprehension		
12. Although less is known about comprehension, important components of reading comprehension seem to be automatic word recognition, vocabulary knowledge, prior "world" knowledge, and organizational skills	Perfetti & Lesgold (in press) Weaver, Willis, & Shontoff (1977)	• Develop and test teaching strategies and materials to teach known components of comprehension.

Table 2

Why Test Scores Have Not Indicated More Reading Improvement

Possible Factors	Supporting Research	Suggestions
1. The process of comprehension has not been clearly defined therefore we do not know precisely what we are teaching or assessing	Carver (1973) Carroll (1972) Miller (1975) Rothkopf (1975) Athey (1975)	• Continue basic research in comprehension processes to increase the knowledge base • Survey if and how comprehension is currently taught in classrooms
2. Existing comprehension tests are inadequate. Much comprehension testing is I.Q. in disguise, not the testing of specific teachable skills	Carver (1973) Farr (1969) Pryczak (1972) Adams (1977) Rothkopf (1975)	• Develop and test better reading comprehension tests
3. There is still a gap between what is known about comprehension and what is taught. Much research has not yet been translated into classroom usage	Clifford (1973) Weaver, Willis, & Shontoff (1977) Pavlak (1974) Resnick (1975)	• Develop and test instructional strategies and materials to translate what is already known into classroom practices • Provide information to publishers for incorporation in materials for widespread dissemination

Table 2 (cont.)

Why Test Scores Have not Indicated More Reading Improvement

Possible Factors	Supporting Research	Suggestions
4. Schools have not adequately matched reading objectives, assessment, and instruction	Tyler & Wolf (1974) Rosenshine (1976) Cooley & Leinhardt (1975)	• Develop procedures for identifying and evaluating the match between reading objectives, assessment, and instruction
5. In general, teachers are not well-trained in the teaching of comprehension and lack diagnostic skills and effective teaching techniques	Carroll & Chall (1975) Hanushek (1970) Austin (1968) Harsh (1971) Rystrom (1970) Gall (1972)	• Survey how teachers are trained in the teaching of comprehension • Identify characteristics of exemplary teacher training programs in reading • Develop better training procedures for both preservice and inservice teachers
6. Many factors unrelated to reading per se (e.g. teacher's attitude toward low-ability students) may be affecting achievement	McDermott (1977) Mehan (1976) Lortie (1976)	• Support ethnographic studies which study reading in the context of the whole environment

Possible Factors in Effective Reading Instruction (general)

Table 1 identifes twelve possible factors which might relate to the effective teaching of reading. Ten of these factors are related to reading in general (and in some cases, instruction in general), one factor relates specifically to decoding, and one to comprehension. The references cited next to each factor are representative rather than exhaustive and are briefly elaborated below.

A strong commitment by schools (especially administratrators) to place improved reading as a high priority. Schools administrator interest and attention appear to make a difference (Carroll and Chall, 1975). This is evident when similar communities and use of similar materials produce different results (Bond and Dykstra, 1967). Samuel's (in press) reported on Weber's finding in the New York State Study and stated that among other factors, strong leadership and a strong emphasis on reading contributed greatly to success of reading programs. An important factor identified by Wilder (1977) in a review of five "good" reading program was that each school had defined reading as an important instructional goal. This was evidenced by the time spent in reading, the money spent for reading materials, and the quality of the resources devoted to reading.

Why are some administrators, and not others, committed to the improvement of reading? Is it possible to train administrators to develop a more positive attitude toward reading?

High expectation by teacher and administrators. Gordon (in press) feels that emphasis on reading and high expectations for students can contribute to creating a school where reading is "the thing to do."

Teacher expectations of student ability to learn lead to selfulfilling prophecies that affect student learning (Brophy and Good, 1972; Pigeon, 1970; Rosenthal and Jacobsen, 1968).

Are teachers aware of their expectations of individual students? What are the student characteristics which contribute to teacher expectations? Can teachers change their perceptions? How?

Policy and support for reading improvement from all levels of the system. In studying the Project Talent data, Klitgaard and Hall (1973), reviewing various types of school programs, located schools and districts that consistently performed better than their peers. One of the eight common characteristics found in successful compensatory education programs was the systematic planning resulting from policy decisions made by partnerships among board members, educators, and parents (Holzman and Boes, 1973). In each of the five schools in Wilder's (1977) review, there was effective educational leadership specific to the issue of reading instruction.

Is there a systematic approach to working for reading improvement throughout the various levels of the education system? Where is the starting point — at the state level, the classroom level, or somewhere between?

A well-trained and highly motivated staff. This factor relates to the above three factors but emphasizes the skills and abilities of the staff. In the USOE spponsored first grade reading studies (Bond and Dykstra, 1967), the five highest and five lowest achieving projects were compared. Seventy-six percent of the teachers in the top five were rated

as having overall competence. Inservice training appears to be a way to improve teacher competencies and Sweeney and Blaschke (1975) found the number of days of inservice training to be positively related to program effectiveness. Wargo (1972) also found that training teachers in program methods was one of the components that characterized successful Title I programs.

There are many variables which contribute to teacher competency. The demographic variables of age, years of teaching experience, etc. have not held up across many studies. However, Bond and Dykstra (1967) did find a significant positive correlation between level of certification and student reading achievement.

Teacher competency can be examined through variables such as teacher characteristics (e.g., attitudes, expectations, expertise), teacher performance (e.g., diagnostic skills, classroom management skills, etc.) and teacher/student interactions (e.g., use of reinforcement, verbal interactions, etc.). Connolly (1977) and Centra and Potter (1977) have examined these variables in relationship to their influence on student achievement and present models of school and teacher variables influencing student learning outcomes. Many problem-oriented questions can be generated to guide further studies and to plan teacher training programs around already known classroom variables which affect student learning.

The identification of reading objectives which are clearly written and understood by all staff. The specification of objectives is the first phase in the objectives-assessment-instruction process which characterizes diognostic/prescriptive teaching. Rosenshine (1976)

identified the need for the existence of an instructional plan with specific instructional objectives, a logical program of instructional units, and frequent monitoring of student progress. One of the eight common characteristics of successful compensatory education programs was the existence of objectives which were clearly written and stated in specific measurable terms. Instructional techniques were closely related to the objectives (Holzman and Boes, 1973).

Much has been learned about the identification and writing of objectives since Mager's work in the 1960's. Although most schools should develop objectives to meet their own unique needs, schools need not completely reinvent the wheel. The dissemination of plans and procedures for identifying objectives should be available for those schools who are initiating the process.

The use of adequate assessment measures and techniques. Assessment measures and techniques are used in placing students, monitoring progress, and assessing achievement. The types of instruments and techniques (informal/standardized) vary with the purpose of the assessment. A frequent criticism of standardized tests recognized by Tyler and Wolfe (1974) is that the tests may not reflect the particular objectives of the educational program, method, or instructional materials. Since tests designed for the national market are constructed to sample topics common to the curricula of most school systems, the test used may not include exercises reflecting objectives of a particular program.

Tyler and Wolfe (1974) further state that:

> Norm referenced tests are not composed of reliable samples of the things that children are being helped to learn in a given grade but, rather, samples of exercises on which children of a given grade differ markedly in performance. The things that most children are learning in that grade are likely not to be included in the test sample because of the item selection procedures [148].

The need for more adequate measures of reading achievement is addressed in another part of this paper (See Table 2, #2).

Another important type of assessment is used for the purpose of diagnosis. In general, there are more informal instruments (i.e., informal reading inventories) available than standardized diagnostic measures. Diagnostic testing and prescriptive approaches were an inherent part of the successful programs reviewed by Criscuolo (1977). Educators recognize the need for better teacher diagnostic/prescriptive skills, which suggests a whole area of study related to teacher training.

A structured, well-organized instructional program which relates to the specified objectives. Structure can refer to the total program or to curricular programs (e.g., basal series) within a program. Successful early reading programs tend to include structured, sequenced instruction in phonics (Chall, 1967). Major studies have shown that the total structure of the class, especially teacher organization and management of the classroom, correlated positively with student reading achievement (Bond and Dykstra, 1967); Evertson and Brophy, 1973; Soar, 1973).

A major problem question is the identification of variables which contribute to a well-organized class. What procedures do well-organized

teachers follow? Can these behaviors and skills be taught to other teachers? What effect does the student composition of the class have on the teacher's organization skills?

Intensified treatment with emphasis on reading-related activities. Intensified treatment usually refers to the amount of time-on-task for both students and teachers. Wiley and Harnischfeger (1974) found that the amount of time students spend in school relates significantly to achievement. However, there is evidence that quantity in relationship to quality is very important. McDonald (1976) found that in second grade reading and mathematics, time spent was not important in and of itself; rather it was the way in which class time was spent which was predictive of student growth (Centra and Potter, 1977). Stallings and Kashowitz (1974) found that time spent on activities unrelated to reading (e.g., classroom management, games, etc.) correlated negatively with achievement.

Are teachers aware of how much of their behavior is off-task? What methods can be developed to help teachers monitor their own behavior? Does any one variable (i.e., classroom control) contribute significantly to time-on-task? Analytical studies of the classroom may contribute useful information to improve both amount and quality of instruction.

Availability of a variety of materials and instructional strategies. Since students learn in different ways, appropriate techniques and materials for one student, may not be effective for another. There has been little research evidence to help teachers in the diagnosis of individual needs according to learning style (Snow, 1977) although the

concept has been lauded in the literature. Nevertheless, Cooley and Leinhardt (1975) maintain that variety of materials may stimulate student interest and eventually motivate learning. Both Criscuolo (1977) and Wilder (1977) found that availability of a breadth of materials was an important characteristic of effective programs.

There appears to be a need for a reference source for reading materials which offers a critical analysis of materials. Unless all materials are purchased on a trial basis, a time-consuming task, the teacher has little information other than promotional materials written by publishers to sell materials. Publishers recently have been pressured by educators to offer effectiveness data, but the response has been minimal. In the absence of effectiveness data, there is a need for reviews which critically analyze programs and materials.

Support and involvement by parents. Many large studies of school effectiveness have identified parental involvement as a positive correlate of student achievement. Since most of these studies examined compensatory programs, the parental interest does not appear to be an artifact of SES. Apparently the program plans included parental involvement. Klitgaard and Hall (1973) report that, in 1968, the Office of Education reanalyzed the Equal Employment Opportunity Survey (EEOS) data by comparing the top and bottom 100 schools and found parental interest as one characteristic of overachieving schools. Criscuola (1977) and Holzman and Boes (1977) also found parent participation as one common characteristic shared by schools identified as having effective programs.

The procedures which these schools used to involve parents should be made available to schools which are planning school improvement projects, especially in those schools where parental interest has been minimal.

Specific aspects of reading instruction. In the past much more research has been directed to aspects of decoding skills than to study of comprehension. Part of this problem stems from inadequate knowledge concerning comprehension (see factors listed in Table 2). Also, educators in the past may have believed that understanding comes automatically with work recognition skills. Although there is evidence that automaticity in decoding contributes to comprehension, other important factors should be recognized. Weaver, Willis, and Shonkoff (1977) identify the following additional important components of comprehension: vocabulary knowledge, prior "world" knowledge, and organizational skills.

These components of comprehension are actually categories of student behavior, over which the teacher has little control, and for which the teacher has little information of effective teaching techniques. The teacher is limited by time and resources when attempting to expand a student's "world" knowledge, for example. Little research has been done on effective vocabulary improvement techniques. Research which increases the knowledge base concerning comprehension processes, a topic covered in the next section of the paper, may contribute to better instructional techniques in the teaching of reading comprehension.

WHY TEST SCORES HAVE NOT INDICATED MORE READING IMPROVEMENT.

The decline in SAT scores and the lack of improvement of older students in the 1975 NAEP survey has led to an interest in the study of assessment (particularly comprehension tests) and to the study of comprehension processes. The problems are outlined in Table 2 and briefly discussed below.

Possible Factors in Test Score Decline

The factors possibly influencing test scores, like those factors affecting the effective teaching of reading, are not discrete. However, the factors are addressed separately below in order to offer specific suggestions for improvement.

The processes of comprehension have not been clearly defined; therefore we do not know precisely what we are teaching or assessing. In 1975, the National Institute of Education sponsored a conference on studies in reading. Ten panels were established to address different aspects of reading. Several of the panels specifically studied aspects of reading comprehension and concluded that much about reading is unknown and more basic research is needed. Panel 5 (Rothkopf, 1975) concluded that:

> The scientific analysis of reading has been difficult because reading appears to depend on many interrelated human capabilities, such as thinking, learning, and perception. Each of these in turn is imperfectly understood [1].

Because of the vast amount of information needed, priorities should be made on crucial studies with a procedural plan of action. The Center for the Study of Reading at the University of Illinois has

been established to begin work on these problems and many scholars in related fields such as linguistics and experimental psychology are studying reading-related problems. The problem of the definition of comprehension is closely tied to the problems of comprehension measurement.

Existing comprehension tests are inadequate since much comprehension testing is I.Q. in disguise, not the testing of specific, measurable skills. Traditionally I.Q. measures have correlated highly with reading achievement tests. In addition, group I.Q. tests involve reading and thus the measures of basic intellectual functioning are contaminated by variations in reading ability (Carver, 1974). Reading has been defined synonymously with reasoning and Farr (1969) has illustrated how reading tests bear a strong resemblance to group verbal intelligence tests. Carver (1974) supports this belief by stating:

> Since traditional item selection techniques involve the selection of the items which best discriminate among individuals, and since intelligence or reasoning-type items tend to be the best in this regard, it is not surprising that standardized reading tests have evolved into standardized verbal intelligence tests [50].

Pyrczak (1972) believes that a large percent of reading comprehension test items can be answered correctly in the absence of the reading passage. The examinee is thus relying on background information rather than reading skills required to understand sentences or paragraphs.

There are many subtests of decoding (e.g., letter naming, letter/sound correspondences, etc.) which help the teacher diagnosis and teach specific decoding skills. On the other hand, most comprehension tests consist of vocabulary items and multiple-choice type questions. Some comprehension questions are labeled literal, inferential, or interpretive in an attempt to assess the level of comprehension. But the teacher is rarely given information on individual difficulties in processing the various levels of comprehension.

Basic research in reading will contribute to the knowledge concerning information processing skills and may provide test developers more valid techniques of assessing teachable comprehension skills.

There is still a gap between what is known about comprehension and what is taught since much research has not yet been translated into classroom usage. A recent publication Research Within Reach: A Research —Guided Response to Concern of Educators (Weaver, Willis, and Schonkoff, 1977) attempts to answer educators' questions by interpreting reading research. The project consisted of interviewing teachers, supervisors and administrators to discover questions they wanted answered. Literature was reviewed and researchers were interviewed to answer the question, "What have researchers discovered that can help answer the practitioner questions?" The result is a reference source which will help teachers confirm practices or try new ideas.

Panel 6 of the NIE Conference on Studies in Reading (Resnick, 1975) was titled "Application of Existing Reading Comprehension Research". The panel members suggested six different approaches for practical applications of research and recommended that results be tested on a small scale before large sums of money are invested in new materials. The school should be the laboratory in the study of practical applications. Teacher in-put on what works is necessary in order to assure that discoveries in the experimental laboratory can be converted to viable instructional procedures.

Another reason why test scores have not improved may be because schools have not adequately matched reading objectives, assessment, and instruction. This point was discussed under numbers 5, 6, and 7 in Table 1. It was noted that effective reading programs generally have clearly stated goals, a structured program to meet goals, and appropriate assessment measure.

Most of the suggestions for improving the teaching of reading center around the training of teachers and other school personnel. The reason for this is because, in general, teachers are not well-trained in the teaching of comprehension and lack diagnostic skills and effective teaching techniques. There is a positive relationship between the level of teachers' training and student outcomes (Bond and Dyhstra, 1967; Hanuchek, 1970), and research has indicated that specific teaching behaviors can be acquired. For example, teachers can be trained to improve their questioning techniques

which, in turn, affects the level of student response (Centra and Potter, 1977; Rosenshine, 1971). The literature relevant to teachers' use of questions in the teaching of reading was reviewed by Gall (1972) who concluded that teachers generally make little use of higher order questions.

The relatively poor teacher education in reading has been recognized by many educators. Austin (1968) found that many teachers did not have specific courses in reading and follow-up studies (Harsh, 1971) showed little improvement. More recently there appears to be a trend toward stronger requirements for the teaching of reading (Carroll and Chall, 1975). Most reading methods courses for elementary teachers concentrate on methods of teaching reading in the primary grades (Harsh, 1971). Chall (Carroll and Chall, 1975) believes that teacher preparation in the teaching of reading needs considerable improvement. She suggests in-service education for teachers at both the elementary and secondary levels. Most studies of teacher preparation look only at the number and type of course and do not investigate the content of the courses. It may be that teachers are not taught how to teach comprehension and thus have little information or experience to prepare them for one of the most important teaching tasks. For example, the existing knowledge concerning questioning strategies does not seem to be emphasized in courses on the teaching of reading.

However, concentrating only on problems directly related to reading overlooks the fact that many factors unrelated to reading

per se (e.g., teacher's attitude toward low-ability students) may be affecting achievement. Reading behavior as well as reading processes must be studied. When examining the behavior of learning to read in school, it is crucial to consider the context in which reading behavior occurs. Reading is a language behavior that is both "learned and performed in social contexts" yet few educational researchers have studied reading from this perspective (McDermott, 1977). Recently ethnographic techniques (Cazden et al. 1976) have not only examined what teaching styles are effective, but how those teaching strategies actually happen. The "holistic" perspective of these studies help to describe the interactional work that make up the systematic patterns of the classrooms.

In summary, this paper has attempted to identify those factors which appear to contribute to effective teaching of reading, to speculate on reasons why tests scores have been declining, and to make suggestions on how reading might be improved. Certain factors appear to relate directly to reading, others are generalizable across content. In general, schools with effective reading programs tend to have common characteristics such as a commitment to improved reading, a competent teaching and administrative staff, clearly defined objectives, a structured, intensified program, adequate assessment techniques, availability of a variety of materials, and parental support and involvement.

Early reading skills seem to be taught best through a highly structured and sequenced program emphasizing phonics. Comprehension programs are less clearly defined and this problem may be due to the lack of basic knowledge on comprehension processes. There are also many problems in defining and assessing comprehension and it is extremely important that the assessment measures relate to the program objectives and instruction.

Despite the need for further knowledge on comprehension processes and teaching strategies, there appears to be much existing knowledge which has not reached the classroom. Much more research is needed in the testing of materials and techniques to apply existing knowledge. In order for teachers to use these new materials effectively, there is a need for improved teacher preservice and in-service education. Continuing teacher education seems to offer the greatest promise for improving reading yet also poses the greatest problem for educators in terms of available time and resources.

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